

SERVICE COST ESTIMATE

7-FEBRUARY, 2000

PIXEL DETECTOR STEERING GROUP

E. ANDERSSSEN, LBNL

PIXEL DETECTOR

OVERVIEW

- **WHAT I'VE DONE**
- **COMMENTS ON COOLING TUBES**
- **DETAILS ON CABLES**
- **SOME AVENUES TO COST SAVINGS**

COMMENTS ON COOLING SERVICES

- **COST ESTIMATE NOT AS DETAILED AS ESTIMATE FOR CABLES**
 - DESIGN IS STILL MOVING
 - STANDARD FITTINGS DON'T WORK UNTIL PP2
- **COOLING TUBES AND FITTINGS SELECTION**
 - SIZES DETERMINED BY COOLING EXPERIMENTAL GROUP VERIFIED BY PIXELS, WALL THICKNESS TRADE-OFF BETWEEN MATERIAL AND RELIABILITY
 - INSIDE TRACKER, FITTINGS ARE ALL NON-STANDARD AS TUBES ARE ALL NON-STANDARD
 - NO COMPANY IS INTERESTED IN DEVELOPING A NEW CONNECTOR TYPE OR FAMILY FOR ONLY ~100 FITTINGS
 - HAVE INVESTIGATED RAD-HARD O-RING REPLACEMENTS WITH SOME SUCCESS
- **COST IMPLICATIONS OF FITTINGS AND TUBING**
 - IF STANDARD FITTINGS ARE USED-SIGNIFICANT COST IS ADDED TO TUBING END PREPARATION TO ADAPT TO STANDARD FITTINGS
 - IF NON-STANDARD FITTINGS USED COST IS MOVED TO FABRICATION OF